F. G. SCHRANZ.

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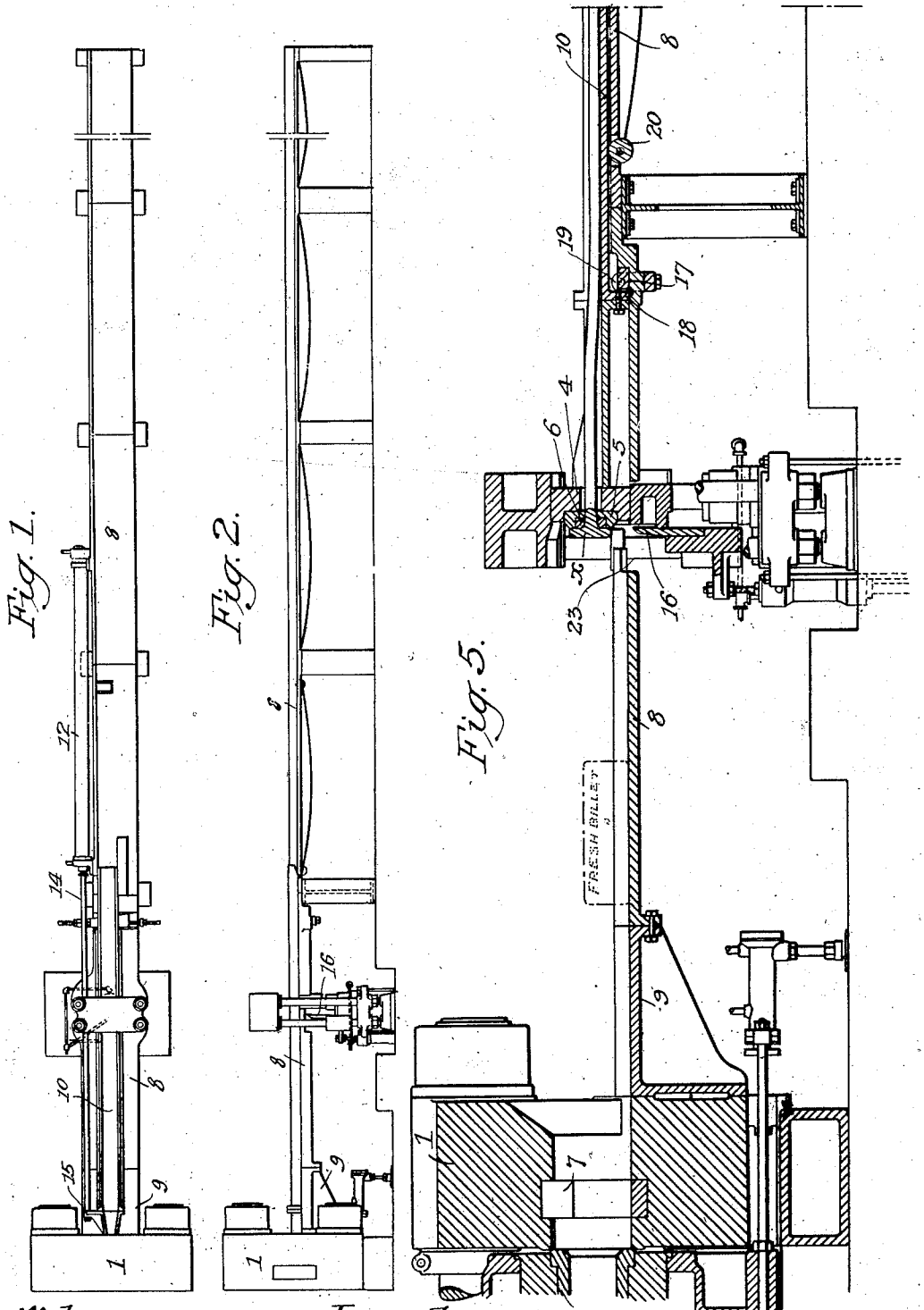
BILLET AND ROD HANDLING MEANS FOR METAL EXTRUSION PRESSES.

APPLICATION FILED AUG. 4, 1920.

1,393,580.

Patented Oct. 11, 1921.

3 SHEETS—SHEET 1.



Witness:
Walter Chisny

Inventor:
F. G. Schranz
by Murray C. Boyer
Attorney.

F. G. SCHRANZ.

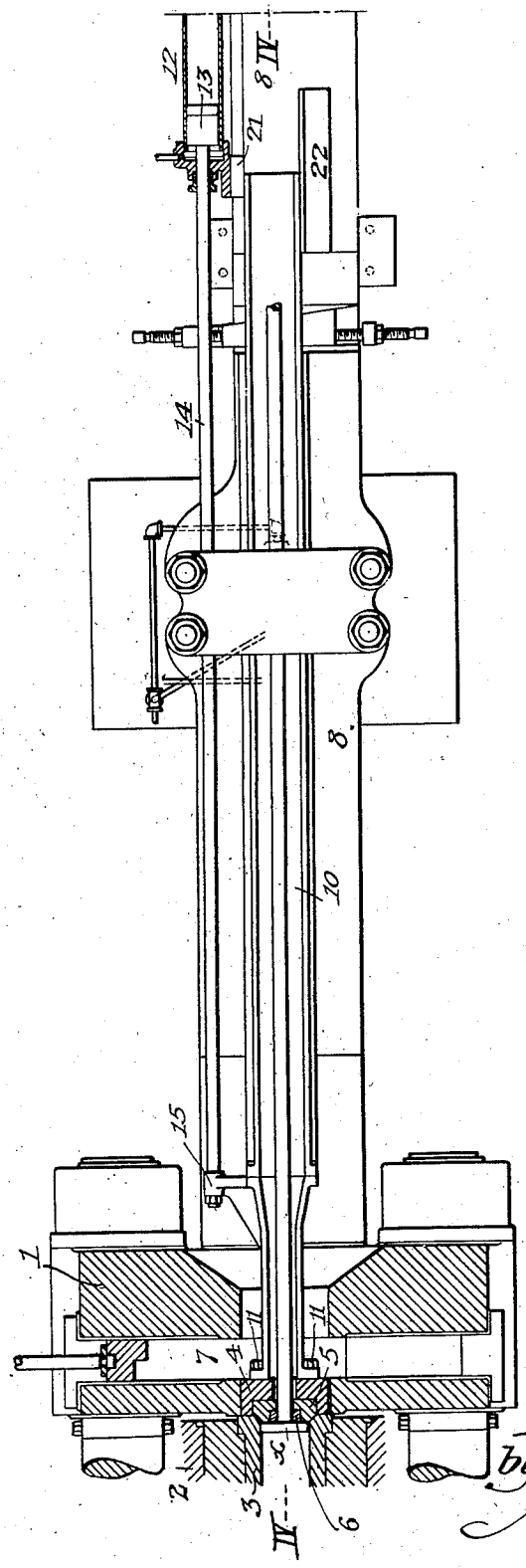
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3 SHEETS—SHEET 2.

Fig. 3.



Witness:
Walter Chism

Inventor:
F. G. Schranz
by Murray C. Boyer
Attorney.

F. G. SCHRANZ.

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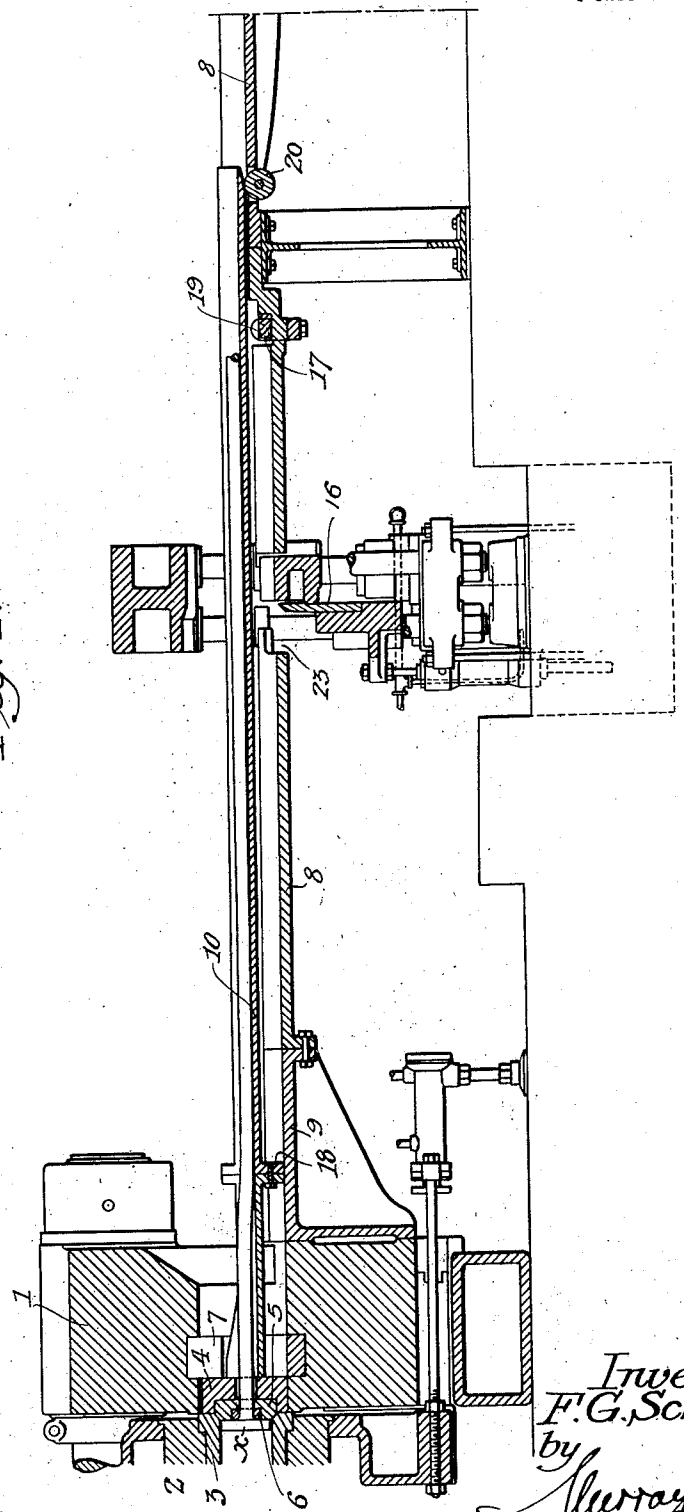
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3 SHEETS—SHEET 3.

Fig. 4.



Witness:
Walter Chism

Inventor:
F. G. Schranz
by Murray C. Bagger
Attorney.

UNITED STATES PATENT OFFICE.

FREDERICK GEORGE SCHRANZ, OF PHILADELPHIA, PENNSYLVANIA.

BILLET AND ROD HANDLING MEANS FOR METAL-EXTRUSION PRESSES.

1,393,580. Specification of Letters Patent. Patented Oct. 11, 1921.

Application filed August 4, 1920. Serial No. 401,116.

To all whom it may concern:

Be it known that I, FREDERICK GEORGE SCHRANZ, a citizen of the United States, and a resident of Philadelphia, Pennsylvania, have invented certain new and useful Improvements in Billet and Rod Handling Means for Metal-Extrusion Presses, of which the following is a specification.

My invention relates to machinery employed in the manufacture of rods, tubes, and the like, extruded from solid billets of metal, and one object of my present invention is to provide means for carrying away from a metal extrusion press, of such type, for instance, as that disclosed in my co-pending application for patent filed August 4, 1920, Serial No. 401,115, the rods, tubes, or other shapes delivered by such press and extruded from a metal billet.

A further object of my invention is to provide means for cutting from such rod, tube, or the like, the stub end of the billet attached thereto; and a still further object of my invention is to provide means whereby the rod delivering means may be employed to present a fresh billet to the press for subsequent extrusion in the form of a rod, tube, or the like.

These and other features of my invention are more fully described hereinafter, reference being had to the accompanying drawings, in which:

Figure 1, is a plan view of billet and rod handling mechanism within the scope of my invention.

Fig. 2, is a side elevation of the same.

Fig. 3, is an enlarged plan view of a portion of the structure shown in Fig. 1.

Fig. 4, is a sectional elevation on the line IV—IV, Fig. 3, and

Fig. 5, is a sectional view, similar to Fig. 4, showing certain portions of the mechanism in another position.

In the drawings, 1 represents one of the housings or supports of a metal extrusion press with which my present invention is employed, and 2 represents a suitable support or carrier, forming part of the equipment of the metal extrusion press, for a sleeve 3, adapted to receive the billets from which rods, tubes, and the like may be extruded. As described in my co-pending application, this sleeve is preferably removable for purposes not necessary to disclose herein. The housing or support 1, carries a support 4, for a die-block 5, which seats against the sleeve 3; the former receiving a die 6, and the support 4 is backed by a removable or displaceable thrust-block 7, so as to provide the desired support for the die during the extruding operation.

Extending rearwardly from the housing or support 1, is a table 8, upon which the extruded rods, tubes, or the like are delivered, and the inner end of this table may be connected to a bracket 9 secured to the housing 1, and having an upper surface continuous with such table. In addition to this table 8, I provide an elongated trough-shaped slidable support or carriage 10, upon which the extruded rods, tubes, or the like or initially delivered; the inner end of which slidable carriage may be connected to the die-block support 4, by suitable means such as bolts 11.

This slidable carriage 10 is movable with respect to the extrusion press, and for this purpose I may provide a cylinder 12 which may be disposed alongside the table 8; such cylinder having a piston 13, to which a rod 14 is connected; the opposite end of said rod being attached to said slidable carriage 10. For this purpose a laterally projecting bracket 15 may be attached to said carriage.

After a rod, tube, or the like has been extruded from a billet, there is usually left a stub end of the billet in the die, since it is either impracticable or impossible to completely extrude the metal of the billet, and before the parts can be placed in position to extrude a second billet it is necessary to remove this stub end, which is indicated at x, in the drawings. For this purpose I may provide a shear blade 16, with the necessary mechanism for operating the same, at a suitable point with respect to the extrusion press, for instance, at the point where the support 4, die-block 5, and die 6, will be carried by full movement of the piston 13 in the cylinder 12.

After the extrusion of the billet in the form of a rod, tube or the like has been completed, the thrust-block 7 is displaced; relieving the support for the die-block, and then, fluid under pressure having been directed against the piston 13 in the cylinder 12, the carriage 10 will be withdrawn until the stub end of the billet is in such position with respect to the shear blade 16 that the latter may be operated to shear the same from the die. It may be desirable to provide a stop 17 to engage a flange 18 of the

carriage 10, which rests on the table 8. The action of the shear blade 16 is controlled by suitable mechanism operated by fluid under pressure, and when the stub end of the billet is in position with respect to the same, as indicated in Fig. 5, the latter may be sheared off.

As soon as this is effected, a fresh billet may be delivered to the table 8, and placed in position to be pushed into the sleeve 3 within the support or carrier 2 of the extrusion press as indicated by dotted lines in Fig. 5, and pressure having been supplied to the cylinder 12 at the rear of the piston 13 therein, the latter effects movement of the slidable carriage 10 toward the extrusion press and pushes the billet into the sleeve 3 of the latter. This brings the die 6 in proper relative position with respect to said sleeve 3, which may have a beveled seat to receive the same; the thrust-block 7 is moved in position to back the die-block 5, and the apparatus is ready to receive another rod or tube extruded from the billet.

The outer end of the slidable carriage 10 may rest upon rollers 19 and 20, to facilitate movement toward and from the extrusion press, and said outer end may also be guided between suitable projections or guards 21 and 22, carried by the table 8. After the rod or tube has been freed from the stub end of the billet it may be discharged from the table 8 upon a suitable conveyer or other means and passed to any convenient place for subsequent use or storage.

The shear blade 16 is mounted in a suitable frame and may be carried by any suitable form of support attached to a piston or other member movable by fluid under pressure, water or steam, as the case may be. This frame preferably surrounds the table 8, and the latter may be cut away, as indicated at 23, for the passage of the shear blade.

I claim:

1. The combination, with a metal extrusion press, of a rod-receiving carriage slidably mounted with respect to said press, and means for moving said carriage from and toward said press.

2. The combination, with a metal extrusion press, of a table, a rod-receiving carriage slidable along the same, and means for moving said carriage in both directions along said table.

3. The combination, with a metal extrusion press, of a rod-receiving carriage slidably mounted with respect to said press, means for moving said carriage from and toward said press, and a die-block or carrier connected to said carriage.

4. The combination, with a metal extrusion press, of a table connected thereto, a rod-receiving carriage slidable along the same, means for moving said carriage from and toward said press and a die-block or carrier connected to said carriage.

5. The combination, with a metal extrusion press, of a die, a die-block therefor, a slidable carriage connected to said die-block, and means for reciprocating said carriage with respect to said press.

6. The combination, with a metal extrusion press, of a die, a die-block therefor, a slidable carriage connected to said die-block, a table upon which said carriage is slidable, and means for reciprocating said carriage along said table with respect to said press.

7. The combination, with a metal extrusion press, of a die, a die-block or carrier for the same, a slidable carriage connected to said die-block, and fluid-operated means for reciprocating said carriage with respect to said press.

8. The combination, with a metal extrusion press, of a die, a die-block or carrier for the same, a slidable carriage connected to said die-block, a table upon which said carriage is slidable, and fluid-operated means for reciprocating said carriage on said table with respect to said press.

9. The combination, with a metal extrusion press, of a die and die-block, and a reciprocable carriage connected to said die-block and adapted to receive an extruded rod or tube delivered through said die.

10. The combination, with a metal extrusion press, of a die and die-block, a reciprocable carriage connected to said die-block and adapted to receive an extruded rod or tube delivered through said die, and fluid-operated means for reciprocating said carriage.

11. The combination, with a metal extrusion press, of a reciprocable carriage for an extruded rod or tube, and a shear blade for severing the stub end of said extruded rod or tube.

12. The combination, with a metal extrusion press, of a reciprocable carriage for an extruded rod or tube, and a vertically movable shear blade for severing the stub end of said extruded rod or tube.

13. The combination, with a metal extrusion press, of a die and die-block, a reciprocable carriage for an extruded rod or tube connected to said die-block, means for moving said carriage, a stop for limiting its movement, and a shear blade for severing the stub end of said extruded rod or tube when the carriage reaches a predetermined point in its outward movement.

14. The combination, with a metal extrusion press, of a die-block, a reciprocable carriage for an extruded rod or tube connected to said die-block, means for moving said carriage, a stop for limiting its movement, and a vertically movable shear blade for severing the stub end of said extruded rod or tube when the carriage reaches a

predetermined point in its outward movement.

15. The combination, with a metal extrusion press, of a billet carrier, a die supported in position with respect to said billet carrier, a backing support for said die, a shear blade, and a reciprocable carriage operatively connected with said die and movable with respect to said press whereby an extruded rod or tube may be moved to position to permit the shear blade to sever the stub end of the same and a fresh billet may be presented to the billet carrier.

16. The combination, with a metal extrusion press, of a billet carrier, a die supported in position with respect to said billet carrier, a die-block receiving said die, a backing support for said die-block, a table, a shear blade, and a reciprocable carriage connected to said die-block and movable on said table whereby an extruded rod or tube may be moved to position to permit the shear blade to sever the stub end of the same and a fresh billet may be presented to the billet carrier.

17. The combination, with a metal extrusion press, of a billet carrier, an extrusion die registering with said billet carrier, a removable backing support for said die, a slidable rod-receiving carriage movable from and toward said press, a shear blade, means for operating the same, means connecting said slidable carriage and die, and fluid-operated means for reciprocating said slidable carriage; movement of said carriage in one direction bringing the stub end of an extruded rod or tube in position to permit the shear blade to sever the same and movement of said carriage in the opposite direction serving to present a fresh billet to the billet carrier.

18. The combination, with a metal extrusion press, of a billet carrier, an extrusion die registering with said billet carrier, a die-block receiving said die, a removable backing support for said die-block, a table, a slidable rod-receiving carriage supported by said table, a vertically movable shear blade, means for operating the same, means connecting said slidable carriage and the die-block, and fluid-operated means for reciprocating said slidable carriage; movement of said carriage in one direction bringing the stub end of an extruded rod or tube in position to permit the shear blade to sever the same and movement of said carriage in the opposite direction serving to present a fresh billet to the billet carrier.

In witness whereof I have signed this specification.

FREDERICK GEORGE SCHRANZ.