

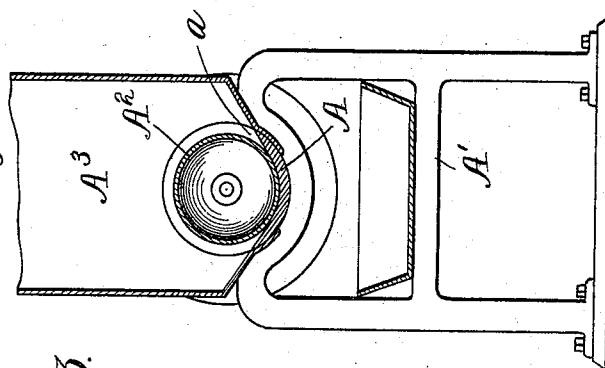
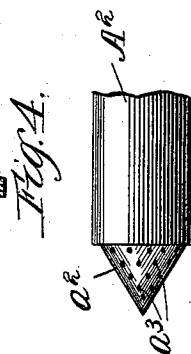
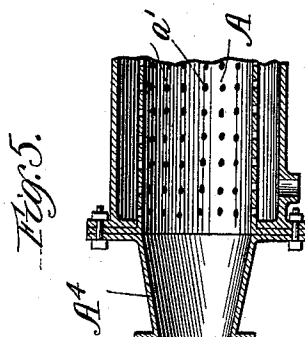
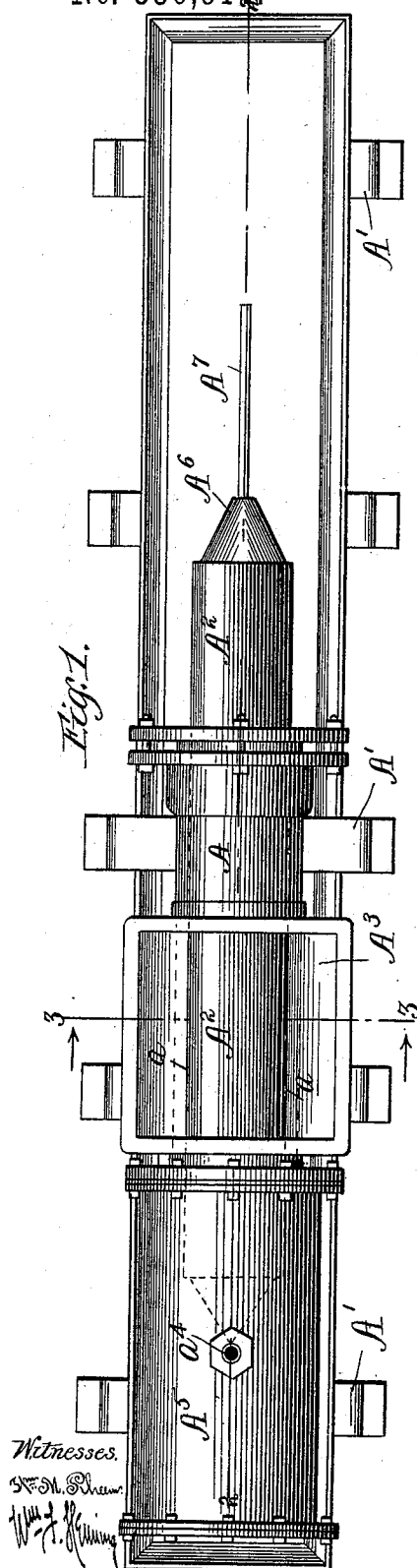
(No Model.)

2 Sheets—Sheet 1.

M. SWENSON.
PRESS.

No. 530,914

Patented Dec. 11, 1894.



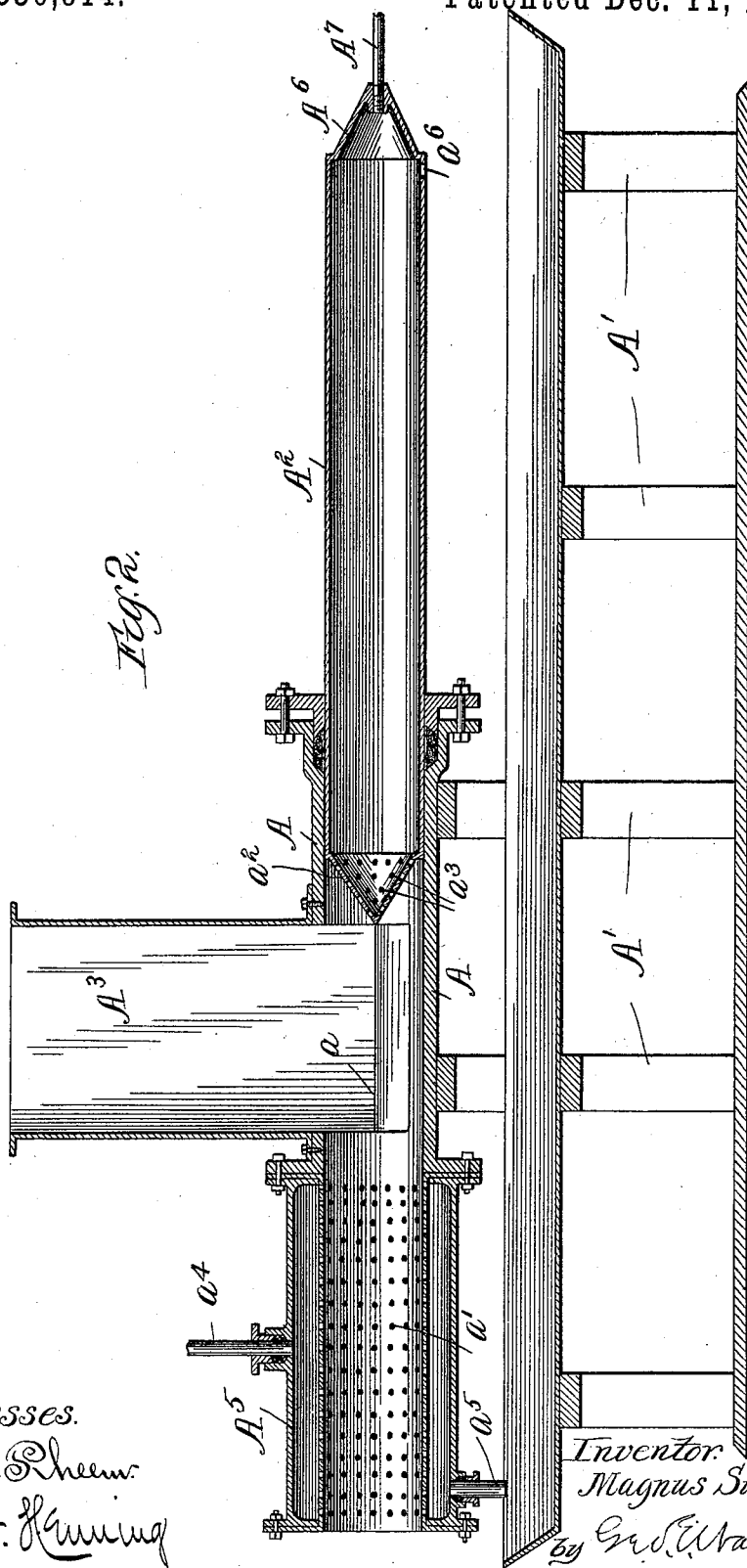
Inventor:
Magnus Swenson.
by *Emo. E. Waldo.*

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Witnesses.

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UNITED STATES PATENT OFFICE.

MAGNUS SWENSON, OF CHICAGO, ILLINOIS.

PRESS.

SPECIFICATION forming part of Letters Patent No. 530,914, dated December 11, 1894.

Application filed January 16, 1894. Serial No. 497,037. (No model.)

To all whom it may concern:

Be it known that I, MAGNUS SWENSON, of Chicago, in the county of Cook and State of Illinois, have invented certain new and useful Improvements in Presses; and I do declare that the following is a full, clear, and exact description thereof, reference being had to the accompanying drawings and to the letters of reference marked thereon, which form a part of this specification.

This invention relates to improvements in presses and relates particularly to presses of the type adapted to extract the liquids from pulpy masses or substances.

Among the objects of the invention are, to provide a press adapted for use in the process of rendering or trying out fats and to extract the moisture from wet pulpy masses or substances leaving a solid residue, which may be burned as fuel, economically. Presses of this type are particularly adapted for use in packing houses, not only in the process of rendering or trying out the fats from the intestines and other refuse, but also to reduce the pulpy contents of the paunch, and other waste pulpy substances to a condition in which they may be used as fuel, thereby rendering valuable a hitherto valueless product, the disposition of which involved expense to the operator.

In its preferable form a press, embodying my invention, comprises a hollow cylinder, a hole or opening therein, through which the pulpy mass is admitted thereto; a hollow pointed piston or plunger fitted to said cylinder; means for reciprocating said piston or plunger longitudinally of said cylinder; and perforations formed in the discharge end of the cylinder and in the point of the plunger, thereby constituting the same screens or strainers.

The invention also consists in the various other features, combinations of features and details of construction, hereinafter described and then specifically pointed out in the appended claims.

In the accompanying drawings, a press, embodying my invention is fully illustrated.

Figure 1, is a plan view, the plunger or piston being at the limit of its forward stroke. Fig. 2, is a longitudinal vertical section on the

line 2—2 of Fig. 1, the plunger or piston being at the limit of its rearward stroke. Fig. 3, is a transverse sectional view on the line 3—3 of Fig. 1, the piston or plunger being at or near the limit of its forward stroke. Fig. 4, is a view of the front end of the piston or plunger; and Fig. 5, illustrates a modification of the press, showing the discharge end of the cylinder as contracted or choked.

In the drawings the cylinder of the press, A, is secured to or formed integral with a suitable frame work or support, A'. Both ends of the cylinder, A, are open and fitted thereto is a piston or plunger, A², to which reciprocal movement, longitudinally of said cylinder, A, is imparted by any suitable means.

The material or mass to be treated is preferably contained in a hopper or receptacle, A³, whence it is delivered to the press through an admission port or opening, a, in the cylinder, A. The port or opening, a, is so located relatively to the travel of the piston or plunger, A², that it will be opened at each rearward stroke thereof and the length of said port is about equal to one-half the length of the stroke of said piston or plunger. Thus at each rearward stroke of the piston or plunger, A², a portion of the contents of the hopper, A³, descends into the cylinder, A, in front of said plunger and is forced along and through said cylinder by the forward movement of said plunger and discharged at the front open end thereof. In the preferable construction also, the admission port or opening, a, extends somewhat more than one-half way around the cylinder, A, and the hopper, A³, is fitted to the edges thereof as clearly shown in Fig. 3. By this construction the delivery of the pulpy mass to the cylinder is greatly facilitated.

The portion of the cylinder, A, through which the material to be pressed passes, that is, the part thereof in front of the opening, a, is perforated with holes, a', through which the liquid contained in said mass drains, as the mass is forced along said cylinder by the action of the plunger, A².

Generally, the friction between the cylinder, A, and the mass of material, as it is forced

through the same by the piston or plunger, A^2 , offers sufficient resistance to the movement of such mass to subject the same to the requisite pressure. In the preferable form of the press, also, the piston or plunger, A^2 , is hollow and the front end thereof terminates in a point, a^2 perforated with holes, a^3 , substantially in the same manner as the discharge end of the cylinder, A , is perforated. By this means a twofold advantage is secured, as follows: First, the pointed end of the plunger creates a pressure tending to force the contents of the cylinder outward against the sides thereof and increasing the friction between the same and the contents thereof and correspondingly increasing the pressure to which said mass is subjected; again, it is found, in practice, that the drainage through the perforations, a^1 , alone, does not suffice to sufficiently dry the residue of solid material left in the cylinder, the middle of which mass still remains too wet to burn, economically, but when a piston, terminating in a perforated point is used, the liquid contained in the interior of the mass drains into the interior of the plunger, A^2 , at the rear end of which it escapes.

In case it is desired to still further increase the resistance offered to the passage of the solid residue through the cylinder, A , thereby correspondingly increasing the pressure to which said residue is subjected, this can be effected by slightly contracting or choking the discharge end of said cylinder, which can be easily accomplished by attaching to the end of said cylinder, a removable section, A^4 , having the desired contraction or choke, as clearly shown in Fig. 5.

Beneath the perforated portion of the cylinder, A , and the rear end of the plunger, A^2 , dripping pans are provided, into which the liquid, extracted by the press, drains and whence it escapes through suitable waste pipes provided for the purpose.

In the preferable form of the press, the perforated end of the cylinder, A , is inclosed in a jacket, A^5 , which in addition to forming a dripping pan, renders it possible, by admitting steam thereto, to subject the contents of the cylinder to the action of a high degree of heat. This is particularly desirable in the process of rendering or trying out fats. For the purpose of admitting steam to said jacket, an admission pipe, a^4 , is provided, while the extracted fats and other liquids run off through a discharge or waste pipe, a^5 , which leads to any suitable tank or resort.

In order to prevent the contents of the hopper from working out at the rear end of said cylinder, a suitable packing gland may be provided for the plunger, at its rear end, as shown in Figs. 1 and 2 of the drawings.

Simple means for reciprocating the piston, A^2 , comprise a crank connected with said piston or plunger, by means of a connecting

rod, cross-head and piston rod, a familiar construction very common in steam engines and the like. As the means for so reciprocating said plunger, form no part of the present invention, they have not been illustrated in the drawings.

As shown the rear end of the plunger, A^2 , is closed by means of a head, A^6 , to which the piston rod, A^7 , can be conveniently secured. When so closed, holes or openings, a^6 , are made in the under side of the said plunger adjacent to the rear end thereof, through which the liquid, which drains into said plunger, through the perforated point, a^2 , thereof may escape.

Effective work may be done with a press of substantially the following proportions and dimensions:—Cylinder, three feet (3') long by four inches (4") in diameter; the admission opening being eight inches (8") long and extending one-half ($\frac{1}{2}$) way around said cylinder and to within about eight inches (8") of the rear end thereof; plunger, two and one-half feet ($2\frac{1}{2}$ ') long, having a stroke of sixteen inches (16") and so adjusted that the travel of the front end thereof will be forward from the rear edge of the admission port of the cylinder. These dimensions may be varied as desired to meet requirements.

I claim—

1. In a press, the combination with a cylinder provided with an admission port or opening and perforated adjacent to its discharge end, of a hollow piston or plunger fitted to said cylinder to which reciprocal movement is imparted whereby the admission port is intermittently opened, the front end of said piston or plunger terminating in a perforated point, substantially as described.
2. In a press, the combination with a cylinder provided with an admission port or opening and perforated adjacent to its discharge end, of a hollow piston or plunger fitted to said cylinder, to which reciprocal movement is imparted, whereby the admission port is intermittently opened, the front end of said piston terminating in a perforated point or cone, the base of which is smaller than the end of the piston or plunger, substantially as described.
3. In a press, the combination with a cylinder provided with an admission port or opening and perforated adjacent to its discharge end, of a jacket inclosing the perforated section thereof, a hollow piston fitted to said cylinder, to which reciprocal movement is imparted, whereby the admission port is intermittently opened, the front end of said piston or plunger terminating in a perforated point, substantially as described.
4. In a press, the combination with a cylinder provided with an admission port or opening and perforated adjacent to its discharge end, of a jacket inclosing the perforated portion thereof, a hollow piston or plunger fitted to said cylinder, to which reciprocal move-

ment is imparted, whereby the admission
port is intermittently opened, the front end
of said piston or plunger terminating in a
perforated point, the base of which is smaller
than the end of the piston or plunger, sub-
stantially as described.

In testimony that I claim the foregoing as

my invention I hereunto set my hand this 10th
day of January, 1894.

MAGNUS SWENSON.

Witnesses:

J. H. GIBSON,

B. A. JOHNSTON.