H. C. LA GANKE AND M. J. TAMBLYN.

ATTACHMENT FOR PUNCH PRESSES.

APPLICATION FILED JAN. 2, 1920.

1,408,894.

Patented Mar. 7, 1922.

2 SHEETS—SHEET 1.

Fig. 1.

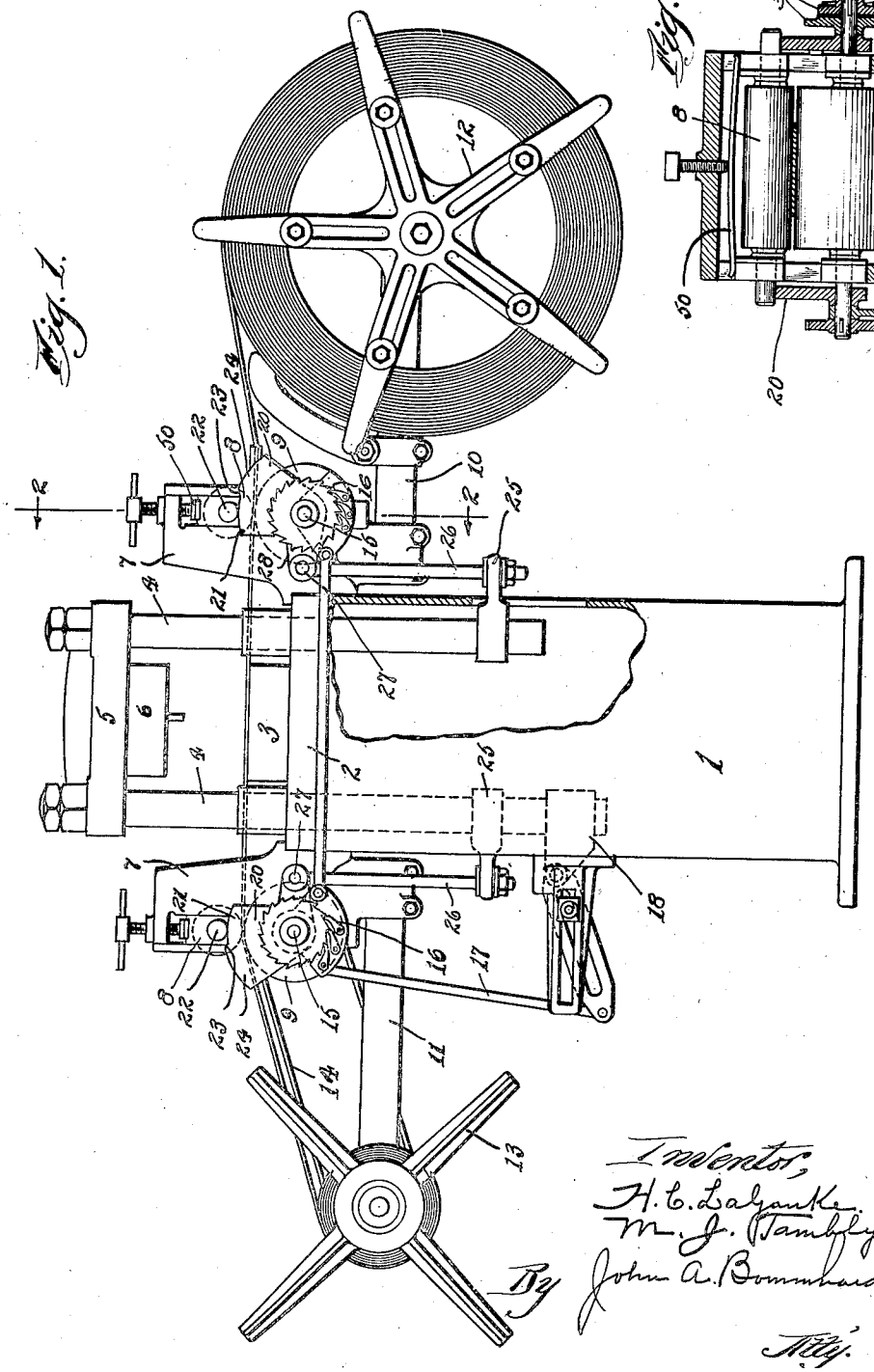


Fig. 2.

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Fig. 3

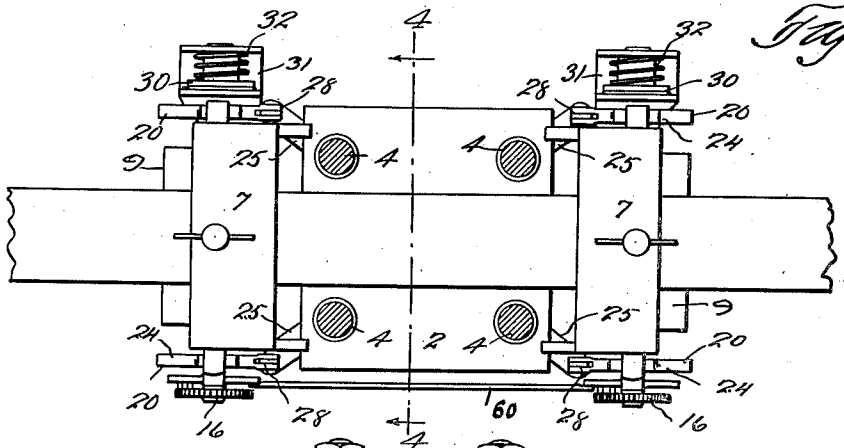
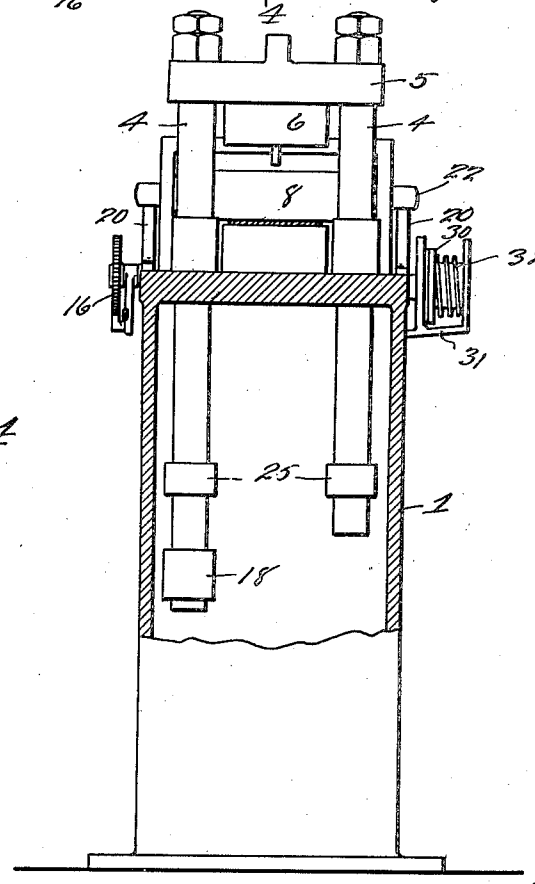


Fig. 4



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UNITED STATES PATENT OFFICE.

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ATTACHMENT FOR PUNCH PRESSES.

1,408,894. Specification of Letters Patent. Patented Mar. 7, 1922.

Application filed January 2, 1920. Serial No. 349,108.

To all whom it may concern:

Be it known that we, HUGO C. LA GANKE and MILTON J. TAMBLYN, citizens of the United States, residing at Cleveland, in the county of Cuyahoga and State of Ohio, have invented certain new and useful Improvements in Attachments for Punch Presses, of which the following is a specification.

This invention relates to punch presses and has for its object to provide a releasing attachment for the feeding rollers, with which all presses of the automatic type herein illustrated are provided.

Frequently, when types of feeding mechanism such as shown are employed, the pressure exerted upon the stock by the feeding rollers is so great that the stock is stretched very tightly across the face of the die block, and when the stock is given its preliminary centering by the centering stud of the punch, the stock is stretched, resulting in a variation in the thickness of the stock, and this variation sometimes amounts to several thousandths parts of an inch. Various means have been employed for releasing the pressure exerted upon the stock by the feeding rollers, all of which have been so constructed as to become frequently broken, due to the continual pounding of the press and it is to obviate this difficulty that the hereinafter described mechanism has been designed.

The invention consists in the new and novel arrangement and combination of parts, hereinafter illustrated, fully described and particularly pointed out in the accompanying claims.

Referring to the drawings wherein like reference numerals designate similar parts of reference throughout the various views, Fig. 1 is a side elevation of a punch press, having applied thereto the releasing mechanism hereinbefore referred to and Fig. 2 is a sectional detail on the line 2—2 of Fig. 1. Fig. 3 is a partial top plan view, partly in section. Fig. 4 is a section on the line 4—4 of Fig. 3.

The invention may be applied upon the type of press shown, and which is known to the trade as the Henry and Wright, and consists generally of a base frame 1 having a bed 2 upon which the die block 3 is secured, and four columns 4 pass through the bed and support at their upper ends and directly above the die block a frame 5, to the bottom face of which is secured the punch block 6. Upon each side of the die block the base 1 supports a suitable frame 7 within which is mounted the feeding rollers 8 and 9, and beneath the rollers 9 and extending outwardly from the base 1 the frames 7 support arms 10 and 11 at the ends of which are carried the stock reels 12 and 13, the reel 12 supporting a roll of new stock and the reel 13 the waste stock. The reel 13 is positively driven by means of a belt 14 having driving connection with a pulley upon the end of the shaft 15 of the roller 9. The rollers 8 and 9 are driven by two ratchet mechanisms 16 one of which is connected through links 17 with the bottom of one of the columns as shown at 18, and the other of which is operated by a cross rod 60 connected to the former, so that both mechanisms operate in unison. The rollers 8 are pressed toward the rollers 9 by springs 50. The foregoing is customary with this type of press and therefore will not be described further.

The releasing mechanism for the rollers is duplicated at both sides of the press and comprises a pair of cams 20, one of each being loosely mounted upon each end of each shaft 15 and said cams are provided with a portion 21 which normally bears upon the extended ends of the shaft 22 of the rollers 8, and at the point 23 the radius of the cams is increased to provide a high part 24 which upon swing of the cam in one direction causes the rollers 8 to be elevated sufficiently to release the two rollers 8 and 9. The cams are caused to swing as the columns 4 start their downward course, the columns having secured at their lower ends and within the base 1 brackets 25 each having adjustably secured thereto one end of a connecting rod 26, the other end of which is pivotally secured at 27 to the arm 28 of the cam. There are four rods 26, each of which is connected to one of the columns 4. To prevent the rollers 9 from rotating during the time the rollers 8 are being elevated and during such time as they are in the elevated position and which rotation would tend to feed the stock, we provide a friction brake mechanism upon the opposite ends of the shafts 15. This consists of a pair of disks 30, one carried by said shaft and the other by suitable supports 31 carried bythe frame 7; the disks are normally held in engaged position by the spring 32.

With the parts constructed as described the operation is as follows:

As before stated a new roll of stock is secured upon the reel 12 the free end of which is passed through guides and between the rollers 8 and 9, from there it is guided directly over the face of the die block and between the opposite pair of rollers 8 and 9 and the end is then secured upon the reel 13. The reel 13 being positively driven by means of the ratchet 16 operating upon the shaft 15 causes the tape of stock to pass from the right to the left as viewed in Figure 1. Upon the downward movement of the column 4 the cams 20 are caused to rotate and just previous to the centering punch justifying the stock, said rollers 8 are caused to elevate and thus release the pressure upon the stock. This permits the stock to yield slightly as it is justifying and prevents any possibility of stretching.

It is evident that numerous modifications may be had of this device and we do not wish to limit ourselves in the construction of the same further than is required by the state of the art or that which comes within the scope of the appended claims.

We claim:

1. The combination with a punch press having a reciprocating head and columns secured thereto, and a pair of feed rollers, of a pair of cams loosely mounted on the shaft of one of the rollers and engaging the ends of the shaft of the other roller to lift the latter, and rods connected to the cams and the columns, to swing the cams as the columns reciprocate.

2. The combination with a punch press having a reciprocating head and a pair of feed rollers, of a rocking cam connected to the head and engaging the shaft of one of the rollers and pivotally mounted upon the shaft of the other roller and having a rise adapted to lift the first mentioned roller out of feeding engagement during part of the stroke of the head.

3. The combination with a punch press having a pair of feed rollers between which the stock is fed, of a pair of cams engaging opposite ends of the shaft of one of the rollers and pivotally mounted upon the shaft of the other roller and operatively connected to a moving part of the press, said cams having a rise adapted to lift the first mentioned roller out of feeding contact with the stock during part of the stroke of the press.

In testimony whereof, we do affix our signatures in presence of two witnesses.

HUGO C. LA GANKE.
MILTON J. TAMBLYN.

Witnesses:
JOHN A. BOMMHARDT,
ROBERT L. BRUCK.