J. SMITH.

Let-Off Mechanisms for Looms.

No. 153,687. Patented Aug. 4, 1874.

FIG 1

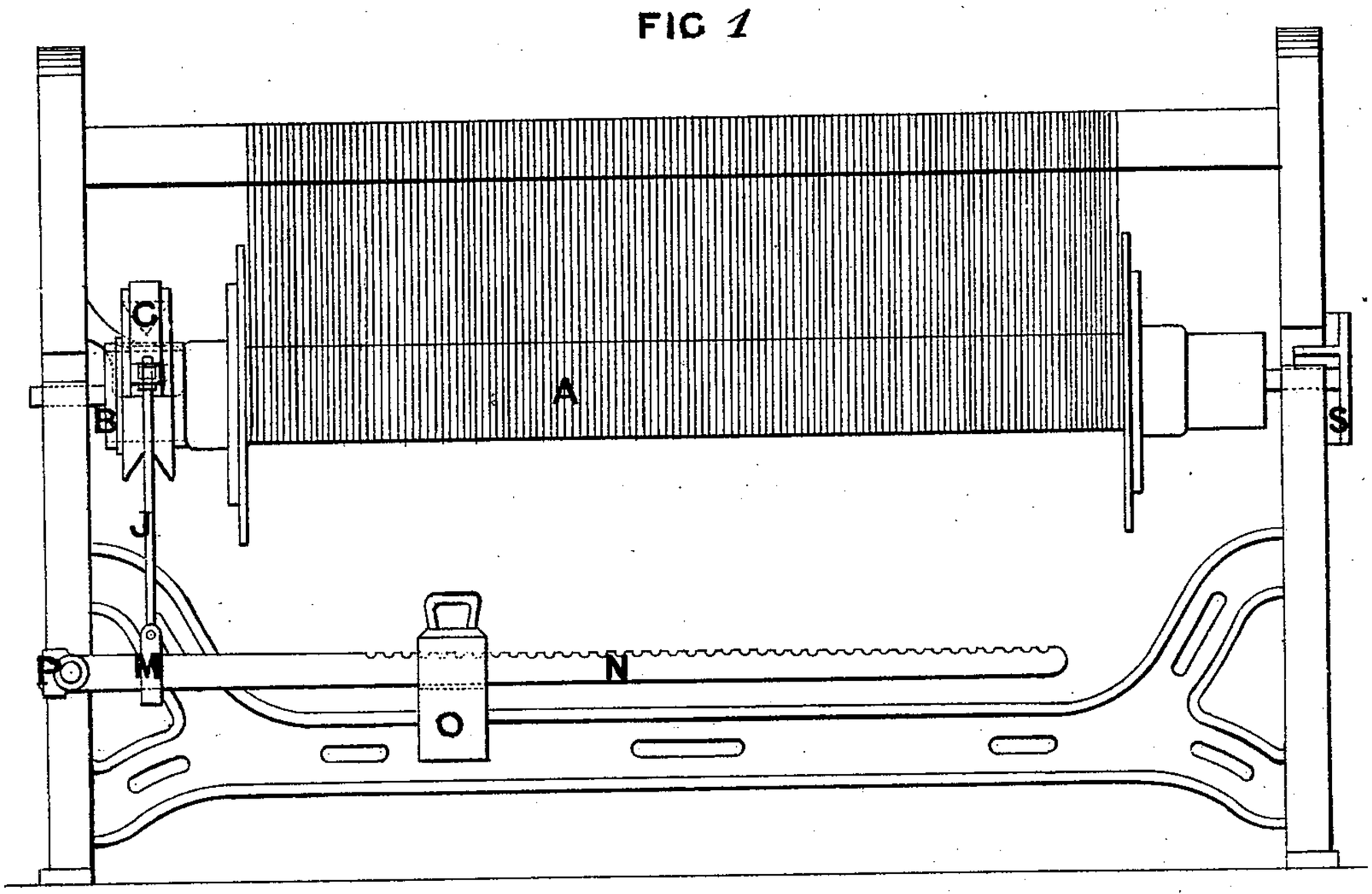


FIG 2

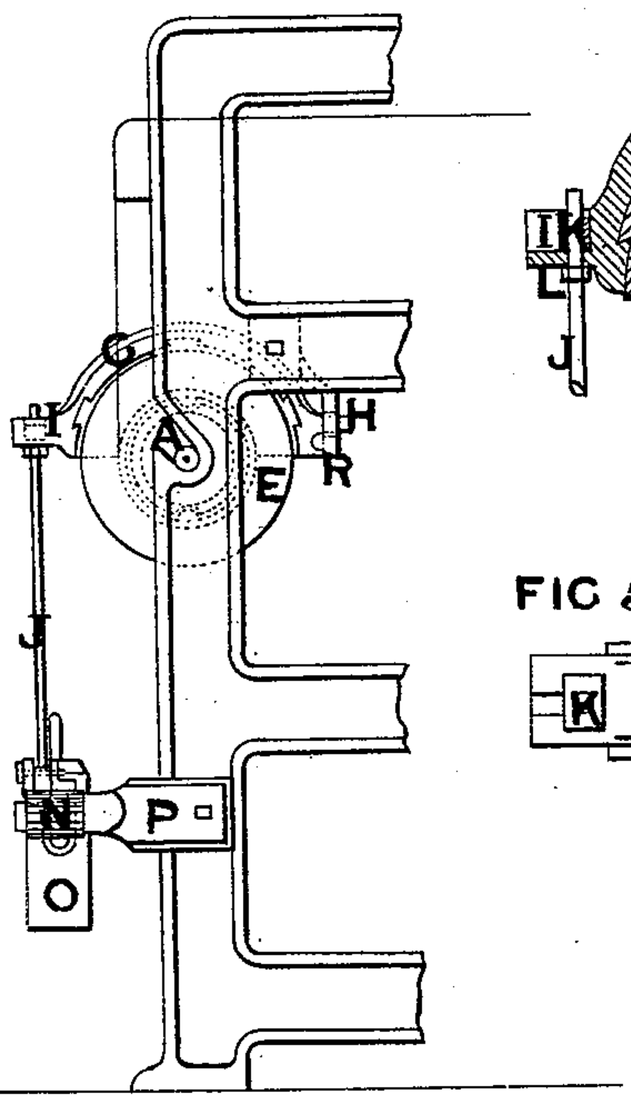


FIG 3

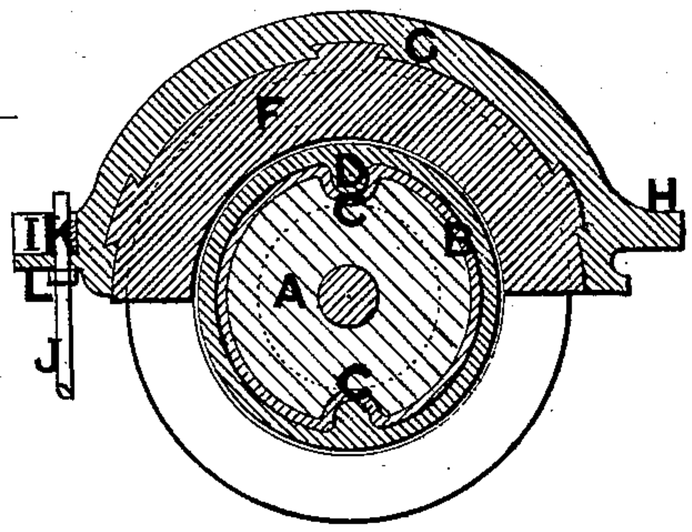


FIG 4

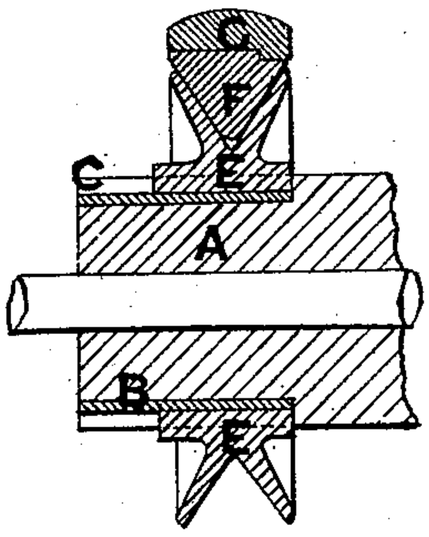


FIG 5

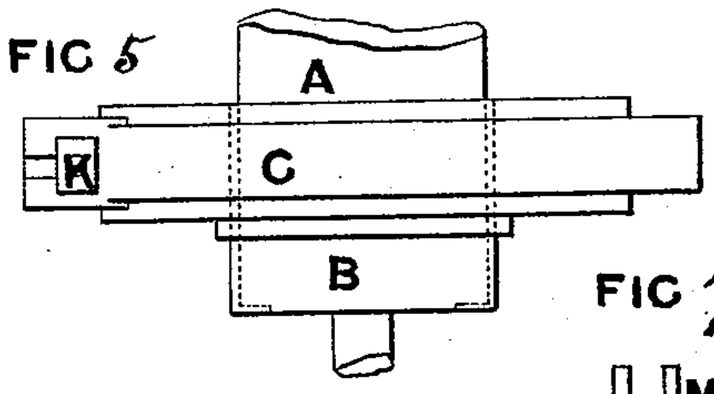


FIG 6

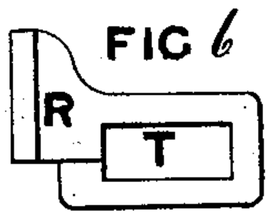


FIG 7


FIG 8


WITNESSES.

Walter Jos Turner

Frederick Henry Gill

INVENTOR.

John Smith

THE GRAPHIC CO. PHOTO-LITH. 39 & 41 PARK PLACE, N.Y.

# UNITED STATES PATENT OFFICE.

JOHN SMITH, OF BRADFORD, ENGLAND.

## IMPROVEMENT IN LET-OFF MECHANISMS FOR LOOMS.

Specification forming part of Letters Patent No. **153,687**, dated August 4, 1874; application filed April 28, 1874.

*To all whom it may concern:*

Be it known that I, JOHN SMITH, of Bradford, in the county of York, England, mechanical engineer, have invented certain Improvements in Looms for Weaving, of which the following is a specification:

This invention relates to self-acting apparatus for the purpose of delivering the warps at any required tension.

I employ a cast-iron bush, which I fit on the end of the warp-beam. In this bush are cast recesses, preventing the bush moving on the warp-beam. On the bush is fitted a grooved or **V** pulley, which is kept from moving by feathers or ribs cast in the inside, and fitting in the recesses of the bush. On the top part of the grooved or **V** pulley is fitted a brake, working in the groove or **V**. This brake is made of metal, leather, wood, or, by preference, of vulcanite india-rubber. On the top of the brake is fitted a cap having lugs cast at each end. One of the lugs is passed through an eye of a bracket. This bracket is fixed to the loom-frame, and keeps the brake and cap in their position, allowing a free action. In the front lug of the cap, and at the back of the loom is passed a rod having two nuts to fix the rod in its proper position. The bottom end of this rod is fitted in a cast-iron piece, which is placed or passed on a lever on which a weight is made to slide to give any required tension to the warps. The lever is made with notches to prevent the weight moving when placed in the required position. This lever is fitted on a bracket fixed to the loom-frame. I also employ a bracket or fixing to prevent the end of the beam-shaft, on which no apparatus is fitted, from moving or lifting out of position.

In large looms I employ two mechanisms, one at each end of the warp-beam.

But, in order to make my improvements better understood, I will proceed to more particularly describe the same by reference to the accompanying drawing, in which—

Figure 1 represents the back part of a loom and the front elevation of my apparatus; Fig. 2, side view of the same; Fig. 3, sectional side view of the grooved or **V** pulley, brake, cap, and bush drawn to a larger scale; Fig. 4, sectional front view, and Fig. 5 plan of the same; Fig. 6, side elevation of the bracket, in which is fitted the end lug of the brake-cap; Fig. 7, side elevation of the bracket, in which is fitted the rod attached to the brake-cap; Fig. 8, front view of the same.

Similar letters of reference are used in all the figures to represent similar parts.

A, warp-beam, on which is fitted the bush B, having recesses C cast in, in which fit the feathers or ribs D of the grooved or **V** pulley E. In the grooved pulley E works the brake F, by preference made of vulcanite india-rubber, this brake being more or less pressed in the groove or **V** of the pulley E to give more or less tension to the warps, which is effected by moving the weight O on the lever N. A cap, G, is fitted on the brake F, and on it is cast a lug, H, which is passed through the eye T of the bracket R, fixed on the loom-frame, keeping the cap in its position, and allowing a free action to the break. On the other end of the cap G is cast another lug, I, through which passes the rod J. This rod is fixed to the cap G by means of the nuts K and L, and at the bottom end of the rod J is fitted the cast-iron piece or bracket M, having an opening, U, which fits on the lever N. On this lever is placed a weight, O, which can be slid up and down the lever N, according to the tension required to be put on the warps. The lever N has notches to prevent the weight O moving when once placed in the required position. This lever N is fitted on a stud formed on the bracket P, which is fixed to the loom-frame. A fixing or bracket, S, is fitted to the opposite frame of the loom when only one apparatus is used. This fixing is for the purpose of keeping the warp-beam shaft in its place, and prevent it lifting.

In large looms two mechanisms are employed, and the fixing or bracket S is not required.

What I claim is—

The removable brake-lever and its separately-removable friction-pad, applied to a

pulley on the end of the warp-beam, and having one of the ends of the brake held loosely and removably by an eye or loop on the frame, and its other end slotted for ready connection and disconnection with the link which connects it to the weighted lever, all substantially as shown and described.

In testimony whereof I have hereunto set my hand and affixed my seal this second day of April, one thousand eight hundred and seventy-four.

JOHN SMITH. [L. S.]

Witnesses:
WALTER JAS. TURNER,
FREDERICK HENRY GILL.